

***** QUERY RESULTS *****

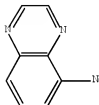
=> d his 117

(FILE 'HCAPLUS' ENTERED AT 16:12:08 ON 06 AUG 2009)

L17 12 S L11 OR L16
 SAVE TEMP L17 FAN232HCAP/A

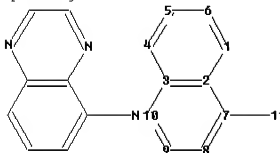
=> d que 117

L3 STR



Structure attributes must be viewed using SIN Express query preparation:

Uploading L2.str



chain nodes :

11

ring nodes :

1 2 3 4 5 6 7 8 9 10

chain bonds :

7-11

ring bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10

exact/norm bonds :

7-11

normalized bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10

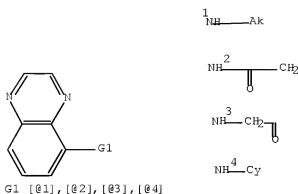
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom

11:CLASS

L5 2049 SEA FILE=REGISTRY SSS FUL L3

L7 26 SEA FILE=REGISTRY ABB=ON PLU=ON L5 AND PMS/CI
 L8 STR



Structure attributes must be viewed using STN Express query preparation:

Uploading L4.str



```
chain nodes :
11 13 14 15 16 17 18 19 20 21 22 23 24
ring nodes :
1 2 3 4 5 6 7 8 9 10
chain bonds :
7-11 13-17 14-18 15-21 16-24 18-19 18-20 21-22 22-23
ring bonds :
1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10
exact/norm bonds :
7-11 13-17 14-18 16-24 18-20 22-23
exact bonds :
15-21 18-19 21-22
normalized bonds :
1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10
isolated ring systems :
containing 1 :
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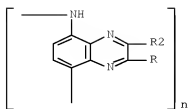
G1:[*1],[*2],[*3],[*4]

Connectivity :
 17:1 E exact RC ring/chain
 Match level :
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
 11:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS
 20:CLASS 21:CLASS
 22:CLASS 23:CLASS 24:Atom

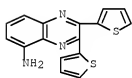
L10 191 SEA FILE=REGISTRY SUB=L5 SSS FUL L8
 L11 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L7
 L12 71 SEA FILE=HCAPLUS ABB=ON PLU=ON L10
 L13 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND ELECTRODE?
 L14 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND ENERGY STOR?
 L15 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND 76/SC, SX
 L16 4 SEA FILE=HCAPLUS ABB=ON PLU=ON (L13 OR L14 OR L15)
 L17 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 OR L16

=> d l17 1-12 ibib abs hitstr hitind

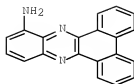
L17 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2008:48914 HCAPLUS Full-text
 DOCUMENT NUMBER: 149:583879
 TITLE: Electrochemical characteristics of
 poly(aminoquinoxaline) compounds as a capacitor
 electrode materials
 AUTHOR(S): Kasai, Mikio; Matsuura, Keisuke; Furusho, Hitoshi;
 Yoshimoto, Nobuko; Egashira, Minato; Morita, Masayuki
 CORPORATE SOURCE: Synthesis Research Department, Chemical Research
 Laboratories, Nissan Chemical Industries, LTD., 722-1
 Tsuboi-cho, Funabashi, Chiba, 274-8507, Japan
 SOURCE: Electrochemistry (Tokyo, Japan) (2007), 75(12),
 958-963
 CODEN: EECTFA; ISSN: 1344-3542
 PUBLISHER: Electrochemical Society of Japan
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese
 AB One of the poly(aminoquinoxaline) compds. series, poly(2,3-dithienyl-5-
 aminoquinoxaline), P(AQX-06) has high potential as an electrochem. capacitor
 electrode materials. In the Et4N+ tetrafluoroborate (TEABF4) MeCN media,
 P(AQX-06)/C felt electrode showed electrochem. redox activity at potential
 window between -1.8 and 1.5 V vs. Ag wire. First, specific capacity of P(AQX-
 06) was lower level, but it gradually rose to reach at 134 Ah kg-1 (210 Fg-1)
 after 3600 cycling. Such high capacity was maintained after further 2000
 cycling. The charge use of P(AQX-06)/C felt electrode showed 62%, which is
 higher level than other conductive polymer materials. By SEM anal., a lot of
 pores are observed on the surface of the electrode after the cycling.
 IT 619253-38-2
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (P(AQX 06); electrochem. characteristics of poly(aminoquinoxaline)
 compds. as a capacitor electrode materials)
 RN 619253-38-2 HCAPLUS
 CN Poly[(2,3-di-2-thienyl-5,8-quinoxalinediyl)imino] (CA INDEX NAME)



IT 619253-37-1
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (assumed monomer; electrochem. characteristics of
 poly(aminoquinoxaline) compds. as a capacitor electrode materials)
 RN 619253-37-1 HCAPLUS
 CN 5-Quinoxalinamine, 2,3-di-2-thienyl-, homopolymer (CA INDEX NAME)
 CM 1
 CRN 619253-30-4
 CMF C16 H11 N3 S2



IT 860478-94-0
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (electrochem. characteristics of poly(aminoquinoxaline) compds. as a
 capacitor electrode materials)
 RN 860478-94-0 HCAPLUS
 CN Dibenzo[a,c]phenazin-10-amine, homopolymer (CA INDEX NAME)
 CM 1
 CRN 860478-79-1
 CMF C20 H13 N3

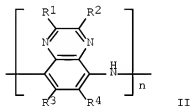
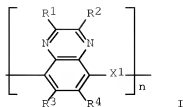


CC 72-2 (Electrochemistry)
 IT 619253-38-2
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (P(AQX 06); electrochem. characteristics of poly(aminoquinoxaline)
 compds. as a capacitor electrode materials)
 IT 619253-37-1
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (assumed monomer; electrochem. characteristics of
 poly(aminoquinoxaline) compds. as a capacitor electrode materials)
 IT 860478-94-0
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (electrochem. characteristics of poly(aminoquinoxaline) compds. as a
 capacitor electrode materials)

L17 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2007:1115567 HCAPLUS Full-text
 DOCUMENT NUMBER: 147:430241
 TITLE: Composition for energy storage
 device electrode and method for producing
 same
 INVENTOR(S): Kasai, Mikio; Furusho, Hitoshi
 PATENT ASSIGNEE(S): Nissan Chemical Industries, Ltd., Japan
 SOURCE: PCT Int. Appl., 81pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007111070	A1	20071004	WO 2007-JP53717	20070228
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRIORITY APPLN. INFO.:			JP 2006-89981	A 20060329
			JP 2006-319713	A 20061128

GI



AB Disclosed is a composition for energy storage device electrodes which contains a carbon material and a polyaminoquinoxaline compound I or II (R1 and R2 independently represent a hydrogen atom, a hydroxyl group, a C1-10 alkyl group, a C1-10 alkoxy group or the like; R3 and R4 independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, a C1-10 alkyl group, a C1-10 alkoxy group or the like; X1 represents -NH-R5-NH- or -NH-R6-, wherein R5 and R6 independently represent a C1-10 alkylene group, -C(O)CH2-, -CH2C(O)- or the like; and n represents an integer of ≤ 2). By using such a composition for energy storage device electrodes, there can be obtained an electrode which enables to increase the d. of energy level of the device.

IT 619253-37-1P 860478-94-0P
 RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (additives for carbon electrodes for electrochem.
 energy storage devices)

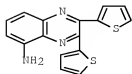
RN 619253-37-1 HCAPLUS

CN 5-Quinoxalinamine, 2,3-di-2-thienyl-, homopolymer (CA INDEX NAME)

CM 1

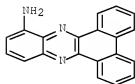
CRN 619253-30-4

CMF C16 H11 N3 S2



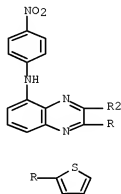
10/588232

RN 860478-94-0 HCAPLUS
 CN Dibenzo[a,c]phenazin-10-amine, homopolymer (CA INDEX NAME)
 CM 1
 CRN 860478-79-1
 CMF C20 H13 N3



IT 860478-86-0P 951326-17-3P 951326-19-5P
 951326-21-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (in synthesis of aminoquinoxaline deriv monomers)
 RN 860478-86-0 HCAPLUS
 CN 5-Quinoxalinamine, N-(4-nitrophenyl)-2,3-di-2-thienyl- (CA INDEX NAME)

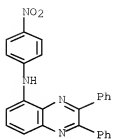
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PAGE 2-A

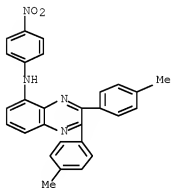


RN 951326-17-3 HCAPLUS
 CN 5-Quinoxalinamine, N-(4-nitrophenyl)-2,3-diphenyl-, ammonium salt (1:1)
 (CA INDEX NAME)

● NH₃

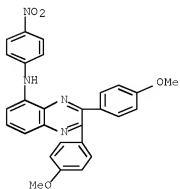
RN 951326-19-5 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methylphenyl)-N-(4-nitrophenyl)-, ammonium salt (1:1) (CA INDEX NAME)

● NH₃

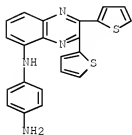
RN 951326-21-9 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methoxyphenyl)-N-(4-nitrophenyl)-, ammonium salt (1:1) (CA INDEX NAME)

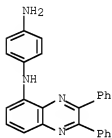
● NH₃

10/588232

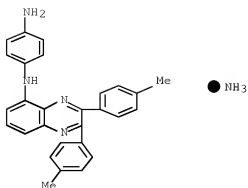
IT 860478-87-1P 951326-18-4P 951326-20-8P
 951326-22-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis as monomers in preparation of polymer additives for
 energy storage devices)
 RN 860478-87-1 HCAPLUS
 CN 1,4-Benzenediamine, N1-(2,3-di-2-thienyl-5-quinoxaliny)- (CA INDEX NAME)



RN 951326-18-4 HCAPLUS
 CN 1,4-Benzenediamine, N1-(2,3-diphenyl-5-quinoxaliny)-, ammonium salt (1:1)
 (CA INDEX NAME)

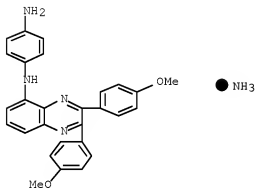


RN 951326-20-8 HCAPLUS
 CN 1,4-Benzenediamine, N1-[2,3-bis(4-methylphenyl)-5-quinoxaliny]-, ammonium
 salt (1:1) (CA INDEX NAME)



RN 951326-22-0 HCAPLUS

CN 1,4-Benzenediamine, N1-[2,3-bis(4-methoxyphenyl)-5-quinoxaliny]-, ammonium salt (1:1) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35

ST polyaminoquinoxaline additive elec double layer capacitor carbon
electrode; electrochem energy storage device
electrode additive aminoquinoxaline polymer

IT Battery electrodes
Capacitor electrodes
(carbon; aminoquinoxaline derivative polymers as additives for)

IT 619253-37-1P 860478-94-0P
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(additives for carbon electrodes for electrochem.
energy storage devices)

IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aminoquinoxaline derivative polymers as additive for carbon
electrodes of electrochem. energy storage
device)

IT 608-32-2P, 1,2,3-Triaminobenzene 3694-52-8P 61875-42-1P 126988-06-5P
440115-69-5P 451462-41-2P 603972-81-2P,
2,3-Di(2-thienyl)-5-nitroquinoxaline 619253-29-1P 860478-79-1P,

Dibenzo[a,c]phenazin-10-amine 860478-86-0P 860478-88-2P

951326-17-3P 951326-19-5P 951326-21-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in synthesis of aminoquinoxaline deriv monomers)

IT 32044-95-4P 32044-97-6P 76097-87-5P 482576-91-0P 619253-28-0P

619253-30-4P 860478-87-1P 860478-89-3P

951326-18-4P 951326-20-8P 951326-22-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(synthesis as monomers in preparation of polymer additives for energy storage devices)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2009 ACS ON STN

ACCESSION NUMBER: 2005:823944 HCAPLUS Full-text

DOCUMENT NUMBER: 143:240087

TITLE: Electrode for energy

storing device and its manufacture

INVENTOR(S): Morita, Masayuki; Yoshimoto, Nobuko; Mukai, Yasuaki;

Kasai, Mikio; Furusho, Hitoshi

PATENT ASSIGNEE(S): Yamaguchi University, Japan; Nissan Chemical Industries, Ltd.

SOURCE: PCT Int. Appl., 74 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

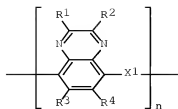
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

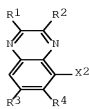
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005076295	A1	20050818	WO 2005-JP1388	20050201
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RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1713101	A1	20061018	EP 2005-709534	20050201
R:	CH, DE, LI			
CN 1926647	A	20070307	CN 2005-80006786	20050201
US 20070120112	A1	20070531	US 2006-588232	20060803
KR 2006124693	A	20061205	KR 2006-715882	20060804
PRIORITY APPLN. INFO.:			JP 2004-30014	A 20040206
			WO 2005-JP1388	W 20050201

GI



I



II

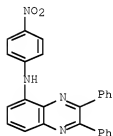
AB The electrode uses a polyaminoquinoxaline I [R1-4 are substituents selected from H, OH, halogen, -CN, -NO₂, amino, and organic groups; X1 = -NHR₅NH or -NHR₆- with R₅ and R₆ being bivalent organic groups] as active mass. The electrode is prepared by applying the polyaminoquinoxaline on a collector, or by electrolytic polymerization of II (X₂ = -NHR₇NH₂ or -NHR₈, R₇ = bivalent organic group, R₈ = cyclic or condensed heteroaryl group) on a collector.

IT 860478-80-4P 860478-81-5P 860478-82-6P
 860478-83-7P 860478-84-8P 860478-85-9P
 860478-86-0P 860478-87-1P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process) (comps. and manufacture of electrodes from polyaminoquinoxaline derivative for energy storing devices)

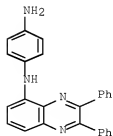
RN 860478-80-4 HCAPLUS

CN 5-Quinoxalinamine, N-(4-nitrophenyl)-2,3-diphenyl- (CA INDEX NAME)



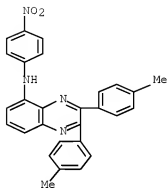
RN 860478-81-5 HCAPLUS

CN 1,4-Benzenediamine, N1-(2,3-diphenyl-5-quinoxaliny)- (CA INDEX NAME)



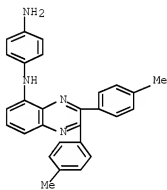
RN 860478-82-6 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methylphenyl)-N-(4-nitrophenyl)- (CA INDEX NAME)



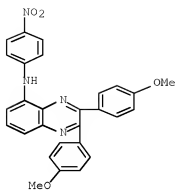
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CN 1,4-Benzenediamine, N1-[2,3-bis(4-methylphenyl)-5-quinoxaliny]- (CA INDEX NAME)



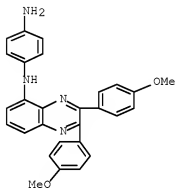
RN 860478-84-8 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methoxyphenyl)-N-(4-nitrophenyl)- (CA INDEX NAME)



RN 860478-85-9 HCAPLUS

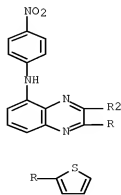
CN 1,4-Benzenediamine, N1-[2,3-bis(4-methoxyphenyl)-5-quinoxaliny]- (CA INDEX NAME)



RN 860478-86-0 HCAPLUS

CN 5-Quinoxalinamine, N-(4-nitrophenyl)-2,3-di-2-thienyl- (CA INDEX NAME)

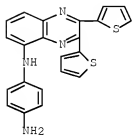
PAGE 1-A





RN 860478-87-1 HCAPLUS

CN 1,4-Benzenediamine, N1-(2,3-di-2-thienyl-5-quinoxaliny)- (CA INDEX NAME)



IT 862806-22-2P 862806-23-3P 862806-24-4P

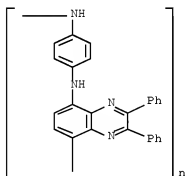
862806-25-5P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(comps. and manufacture of electrodes from polyaminoquinoxaline derivative for energy storing devices)

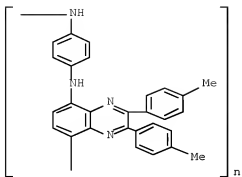
RN 862806-22-2 HCAPLUS

CN Poly[(2,3-diphenyl-5,8-quinoxalinediyl)imino-1,4-phenyleneimino] (9CI)
(CA INDEX NAME)



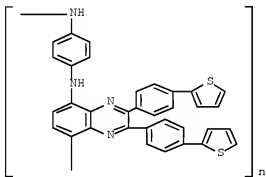
RN 862806-23-3 HCAPLUS

CN Poly[[2,3-bis(4-methylphenyl)-5,8-quinoxalinediyl]imino-1,4-phenyleneimino] (9CI) (CA INDEX NAME)



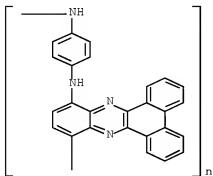
RN 862806-24-4 HCAPLUS

CN Poly[2,3-bis[4-(2-thienyl)phenyl]-5,8-quinoxalinediyl]imino-1,4-phenyleneimino (9CI) (CA INDEX NAME)



RN 862806-25-5 HCAPLUS

CN Poly(dibenzo[a,c]phenazine-10,13-diylimino-1,4-phenyleneimino) (9CI) (CA INDEX NAME)



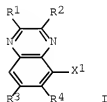
IC ICM H01G009-00
ICS C08G073-02; H01G009-058; H01M004-60
CC 76-i0 (Electric Phenomena)
ST polyaminoquinoxaline electrode active mass energy
storing device manuf
IT Electrodes
(comps. and manufacture of electrodes from polyaminoquinoxaline
derivative for energy storing devices)
IT Capacitors
(double layer; comps. and manufacture of electrodes from
polyaminoquinoxaline derivative for double layer capacitors)
IT Polymerization
(electrochem.; comps. and manufacture of electrodes from
polyaminoquinoxaline derivative for double layer capacitors)
IT 608-32-2P, 1,2,3-Triaminobenzene 3694-52-8P 32044-95-4P 32044-97-6P
61875-42-1P 76097-87-5P 126988-06-5P 440115-69-5P 451462-41-2P
482576-91-0P 603972-81-2P 619253-28-0P 619253-29-1P 619253-30-4P
860478-79-1P, Dibenzo[a,c]phenazin-10-amine 860478-80-4P
860478-81-5P 860478-82-6P 860478-83-7P
860478-84-8P 860478-85-9P 860478-86-0P
860478-87-1P 860478-88-2P 860478-89-3P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(comps. and manufacture of electrodes from polyaminoquinoxaline
derivative for energy storing devices)
IT 862806-22-2P 862806-23-3P 862806-24-4P
862806-25-5P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP
(Preparation); USES (Uses)
(comps. and manufacture of electrodes from polyaminoquinoxaline
derivative for energy storing devices)

L17 ANSWER 4 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2005:673274 HCAPLUS Full-text
DOCUMENT NUMBER: 143:172852
TITLE: Preparation of aminoquinoxaline compounds,
polyaminoquinoxaline compounds
INVENTOR(S): Kasai, Mikio; Furusho, Hitoshi
PATENT ASSIGNEE(S): Nissan Chemical Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005068439	A1	20050728	WO 2005-JP209	20050112
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

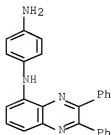
10/588232

EP 1705178 A1 20060927 EP 2005-703448 20050112
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS
 CN 1918135 A 20070221 CN 2005-80004947 20050112
 KR 2006127872 A 20061213 KR 2006-713915 20060711
 US 20090030176 A1 20090129 US 2006-585757 20060712
 PRIORITY APPLN. INFO.: JP 2004-5892 A 20040113
 JP 2004-251766 A 20040831
 JP 2004-256620 A 20040903
 WO 2005-JP209 W 20050112
 OTHER SOURCE(S): MARPAT 143:172852
 GI



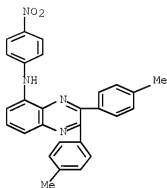
AB The invention relates to preparation of aminoquinoxaline compds. represented by the formula I, where R1 and R2 each independently represents hydrogen, hydroxy, C1-10 alkyl, C1-10 alkoxy, etc.; R3 and R4 each independently represents hydrogen, halogeno, cyano, nitro, amino, C1-10 alkyl, C1-10 alkoxy, etc.; and X1 represents -NH-R5-NH2 or -NH-R6. The compds. have excellent heat resistance and the electrochem. oxidation/reduction potential of which can be easily controlled, and the compds. have extremely narrow band gaps and high fluorescent properties. The preparation of polyaminoquinoxaline compds. obtained by polymerizing the compound I is also provided.

IT 860478-81-5P 860478-82-6P 860478-83-7P
 860478-87-1P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of aminoquinoxaline compds., polyaminoquinoxaline compds.)
 RN 860478-81-5 HCAPLUS
 CN 1,4-Benzenediamine, N1-(2,3-diphenyl-5-quinoxaliny)- (CA INDEX NAME)



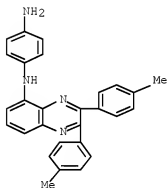
RN 860478-82-6 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methylphenyl)-N-(4-nitrophenyl)- (CA INDEX NAME)



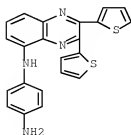
RN 860478-83-7 HCAPLUS

CN 1,4-Benzenediamine, N1-[2,3-bis(4-methylphenyl)-5-quinoxaliny]- (CA INDEX NAME)



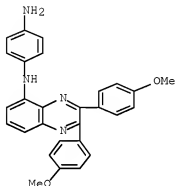
RN 860478-87-1 HCAPLUS

CN 1,4-Benzenediamine, N1-(2,3-di-2-thienyl-5-quinoxaliny)- (CA INDEX NAME)

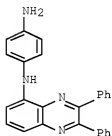


10/588232

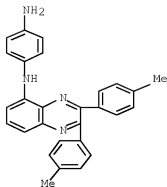
IT 860478-85-9P 860478-90-6P 860478-91-7P
 860478-92-8P 860478-93-9P 860478-94-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation of aminoquinoxaline compds., polyaminoquinoxaline compds.)
 RN 860478-85-9 HCAPLUS
 CN 1,4-Benzenediamine, N1-[2,3-bis(4-methoxyphenyl)-5-quinoxaliny]- (CA
 INDEX NAME)



RN 860478-90-6 HCAPLUS
 CN 1,4-Benzenediamine, N-(2,3-diphenyl-5-quinoxaliny)-, homopolymer (9CI)
 (CA INDEX NAME)
 CM 1
 CRN 860478-81-5
 CMF C26 H20 N4



RN 860478-91-7 HCAPLUS
 CN 1,4-Benzenediamine, N-[2,3-bis(4-methylphenyl)-5-quinoxaliny]-,
 homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 860478-83-7
 CMF C28 H24 N4



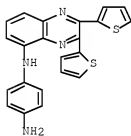
RN 860478-92-8 HCAPLUS

CN 1,4-Benzenediamine, N-(2,3-di-2-thienyl-5-quinoxaliny)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 860478-87-1

CMF C22 H16 N4 S2



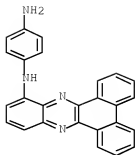
RN 860478-93-9 HCAPLUS

CN 1,4-Benzenediamine, N-dibenzo[a,c]phenazin-10-yl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 860478-89-3

CMF C26 H18 N4



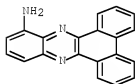
RN 860478-94-0 HCAPLUS

CN Dibenzo[a,c]phenazin-10-amine, homopolymer (CA INDEX NAME)

CM 1

CRN 860478-79-1

CMF C20 H13 N3



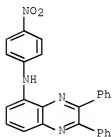
IT 860478-80-4P 860478-84-8P 860478-86-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of aminoquinoxaline compds., polyaminoquinoxaline compds.)

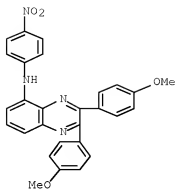
RN 860478-80-4 HCAPLUS

CN 5-Quinoxalinamine, N-(4-nitrophenyl)-2,3-diphenyl- (CA INDEX NAME)



RN 860478-84-8 HCAPLUS

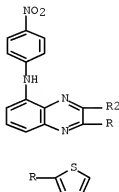
CN 5-Quinoxalinamine, 2,3-bis(4-methoxyphenyl)-N-(4-nitrophenyl)- (CA INDEX NAME)



RN 860478-86-0 HCAPLUS

CN 5-Quinoxalinamine, N-(4-nitrophenyl)-2,3-di-2-thienyl- (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IC ICM C07D241-44

ICS C07D409-04; C08G073-02; H05B033-14; H05B033-22; H01M014-00

CC 28-1 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 35, 52, 73, 76

IT 3694-52-8P 32044-95-4P 32044-97-6P 61875-42-1P 126988-06-5P

440115-69-5P 451462-41-2P 603972-81-2P 619253-29-1P 619253-30-4P

860478-79-1P, Dibenzo[a,c]phenazin-10-amine 860478-81-5P

860478-82-6P 860478-83-7P 860478-87-1P

860478-89-3P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of aminoquinoxaline compds., polyaminoquinoxaline compds.)

IT 76097-87-5P 482576-91-0P 619253-28-0P 860478-85-9P
 860478-90-6P 860478-91-7P 860478-92-8P
 860478-93-9P 860478-94-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation of aminoquinoxaline compds., polyaminoquinoxaline compds.)
 IT 860478-80-4P 860478-84-8P 860478-86-0P
 860478-88-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation of aminoquinoxaline compds., polyaminoquinoxaline compds.)
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
 (1 CITINGS)

L17 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2004:493690 HCAPLUS Full-text
 DOCUMENT NUMBER: 141:61781
 TITLE: Aniline oligomer or polymer, process for producing the
 same, organic EL element and process for producing the
 same, and photoelectric converting organic device
 INVENTOR(S): Hirao, Toshikazu; Sakurai, Hidehiro
 PATENT ASSIGNEE(S): Kansai Technology Licensing Organization Co., Ltd.,
 Japan; Idemitsu Kosan Co., Ltd.
 SOURCE: PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004050641	A1	20040617	WO 2003-JP15207	20031128
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2003302647	A1	20040623	AU 2003-302647	20031128
PRIORITY APPLN. INFO.:			JP 2002-348751	A 20021129
			WO 2003-JP15207	W 20031128
AB	An aniline derivative and a metal complex thereof which are excellent in conductivity, processability, elec. stability, thermal stability, mech. stability, etc. and are advantageously usable as, e.g., conductive mols. in various fields. The aniline derivative is one represented by the following R-C6H4-NH-(repeating unit)n-C6H4-R, wherein, the benzene ring substituted with 4 of R' (R, R' = H, alkyl, alkoxy, aryl, etc.; repeating unit = aniline derivative repeating unit substituted with heterocyclyl which has 2 Ns and closes heterocyclic ring with neighboring carbon of backbone chain via single or double bond; and n = integer 1-500).			
IT	705973-29-1P	705973-30-4P	705973-32-6P	
	RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses) (formation of polyaniline derivative organic EL element and photoelec. converting organic device)			
RN	705973-29-1	HCAPLUS		

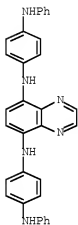
10/588232

CN 5,8-Quinoxalinediamine, N5,N8-diphenyl- (CA INDEX NAME)



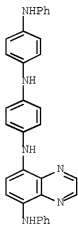
RN 705973-30-4 HCAPLUS

CN 5,8-Quinoxalinediamine, N5,N8-bis[4-(phenylamino)phenyl]- (CA INDEX NAME)



RN 705973-32-6 HCAPLUS

CN 5,8-Quinoxalinediamine, N5-phenyl-N8-[4-[[4-(phenylamino)phenyl]amino]phenyl]- (CA INDEX NAME)



IT 705973-31-5P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (formation of polyaniline derivative organic EL element and photoelec.
 converting organic device)
 RN 705973-31-5 HCAPLUS
 CN 5-Quinoxalinamine, 8-bromo-N-phenyl- (CA INDEX NAME)



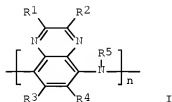
IC ICM C07D241-42
 ICS C07D271-12; C09K011-06; H05B033-22; H05B033-14
 CC 73-6 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)
 Section cross-reference(s): 35, 38, 74, 76
 IT 705973-29-1P 705973-30-4P 705973-32-6P
 705973-33-7P
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP
 (Preparation); USES (Uses)
 (formation of polyaniline derivative organic EL element and photoelec.
 converting organic device)
 IT 148231-12-3P, 5,8-Dibromoquinoxaline 507236-62-6P 705973-31-5P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (formation of polyaniline derivative organic EL element and photoelec.
 converting organic device)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 6 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2003:891980 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 139:351341
 TITLE: Preparation and uses of poly(5-aminoquinoxalines)
 INVENTOR(S): Nagasaki, Yukio; Furusho, Hitoshi; Chikawa, Katsumi;
 Miyamoto, Hisae
 PATENT ASSIGNEE(S): Nissan Chemical Industries, Ltd., Japan
 SOURCE: Eur. Pat. Appl., 26 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1361244	A1	20031112	EP 2003-252925	20030509
EP 1361244	B1	20061018		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004083563	A	20040318	JP 2003-126132	20030501
US 20030215701	A1	20031120	US 2003-429889	20030506

US 6822069 B2 20041123
 CN 1456554 A 20031119 CN 2003-123627 20030509
 PRIORITY APPLN. INFO.: JP 2002-135721 A 20020510
 GI JP 2002-185876 A 20020626



AB Poly(5-aminoquinoxalines) comprise I, in which R1 and R2 each independently represent a hydrogen atom, a hydroxyl group, a Ph group, a substituted Ph group, a biphenyl group, a substituted biphenyl group, a thienyl group, a substituted thienyl group, a naphthyl group, a substituted naphthyl group, pyrrolyl group, a substituted pyrrolyl group, a furyl group, a substituted furyl group, an alkyl group, an alkoxyl, or an alkoxyl group; R3 and R4 each independently represent a hydrogen atom, an alkyl group, an alkoxyl group, a cyano group, a Ph group, a substituted Ph group, a biphenyl group, a substituted biphenyl group, a thienyl group, a substituted thienyl group, a pyrrolyl group, a substituted pyrrolyl group, a furyl group, a substituted furyl group, a naphthyl group, or a substituted naphthyl group; R5 represents a hydrogen atom, an alkyl group, an alkoxyl group, an acetyl group, a cyano group, a Ph group, a substituted Ph group, a biphenyl group, a substituted biphenyl group, a thienyl group, a substituted thienyl group, a pyrrolyl group, a substituted pyrrolyl group, a naphthyl group, or a substituted naphthyl group; and n is a pos. integer of not less than three. The polymers have excellent thermal resistance, permit easy control of the electrochem. oxidation-reduction potential thereof, have a very narrow band gap of themselves, and have strong fluorescence characteristics. 2,3-Diphenyl-5-aminoquinoxaline was prepared and polymerized

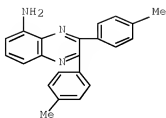
IT 482576-92-1P 619253-31-5P 619253-32-6P
 619253-33-7P 619253-34-8P 619253-35-9P
 619253-36-0P 619253-37-1P 619253-38-2P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (preparation and uses of poly(5-aminoquinoxalines))

RN 482576-92-1 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

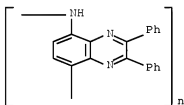
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CRN 482576-91-0
 CMF C22 H19 N3



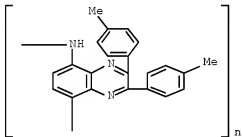
RN 619253-31-5 HCAPLUS

CN Poly[(2,3-diphenyl-5,8-quinoxalinediyl)imino] (9CI) (CA INDEX NAME)



RN 619253-32-6 HCAPLUS

CN Poly[[2,3-bis(4-methylphenyl)-5,8-quinoxalinediyl]imino] (9CI) (CA INDEX NAME)



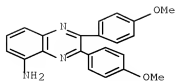
RN 619253-33-7 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methoxyphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

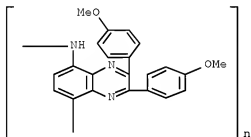
CRN 32044-97-6

CMF C22 H19 N3 O2



RN 619253-34-8 HCAPLUS

CN Poly[[2,3-bis(4-methoxyphenyl)-5,8-quinoxalinediyl]imino] (9CI) (CA INDEX NAME)



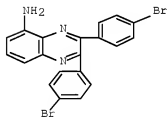
RN 619253-35-9 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-bromophenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

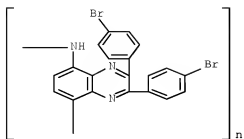
CRN 619253-28-0

CMF C20 H13 Br2 N3



RN 619253-36-0 HCAPLUS

CN Poly[[2,3-bis(4-bromophenyl)-5,8-quinoxalinediyl]imino] (9CI) (CA INDEX NAME)



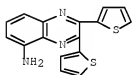
RN 619253-37-1 HCAPLUS

CN 5-Quinoxalinamine, 2,3-di-2-thienyl-, homopolymer (CA INDEX NAME)

CM 1

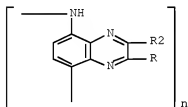
CRN 619253-30-4

CMF C16 H11 N3 S2



RN 619253-38-2 HCAPLUS

CN Poly[(2,3-di-2-thienyl-5,8-quinoxalinediyl)imino] (CA INDEX NAME)



IC ICM C08G073-06

ICS H01L021-34

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 73

IT 354774-60-0P, 2,3-Diphenyl-5-aminoquinoxaline homopolymer
 482576-92-1P 619253-31-5P 619253-32-6P
 619253-33-7P 619253-34-8P 619253-35-9P
 619253-36-0P 619253-37-1P 619253-38-2P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (preparation and uses of poly(5-aminoquinoxalines))
 OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD
 (12 CITINGS)
 REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 7 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2003:341818 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 139:269778
 TITLE: Monomer and polymer quinoxaline derivatives for
 cationic recognition
 AUTHOR(S): Breznova, H.; Volf, R.; Kral, V.; Sessler, J. L.; Try,
 A. C.; Shishkanova, T. V.
 CORPORATE SOURCE: Department of Analytical Chemistry, Institute of
 Chemical Technology, Prague, 16628 6, Czech Rep.
 SOURCE: Analytical and Bioanalytical Chemistry (2003), 375(8),
 1193-1198
 CODEN: ABCNBP; ISSN: 1618-2642
 PUBLISHER: Springer-Verlag
 DOCUMENT TYPE: Journal
 LANGUAGE: English

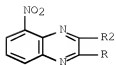
AB Monomeric and polymeric 5-nitroquinoxaline derivs. disubstituted in the 2 and 3 positions with 2-pyrrolyl (A), 2-furyl (B) and 2-thienyl (C) groups were prepared and characterized. The substituted 5-nitroquinoxalines were used as active components in poly(vinyl chloride)-membrane and electropolymerized electrodes that were then tested as possible sensors for various cationic species. In contrast to the difurylnitroquinoxaline-based systems, the monomeric and polymeric dipyrrolyl- and dithienylquinoxaline electrodes displayed a good selectivity for Ag⁺ ions, providing a near-Nernstian response in the 10⁻⁵ to 10⁻² mol L⁻¹ concentration range. The similar potentiometric behavior displayed by the monomeric and polymeric forms of systems A and C supports the contention that the main binding modes displayed by the monomeric forms are retained in the corresponding polymeric structures.

IT 603972-82-3P, 2,3-Di-2-pyrrolyl-5-nitroquinoxaline polymer
 603972-83-4P, 2,3-Di-2-furyl-5-nitroquinoxaline polymer
 603972-84-5P, 2,3-Di-2-thienyl-5-nitroquinoxaline polymer
 RL: ARG (Analytical reagent use); DEV (Device component use); SPN
 (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES
 (Uses)
 (cations recognition by ion selective electrodes based on monomer and polymer disubstituted nitroquinoxaline derivs.)

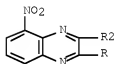
RN 603972-82-3 HCAPLUS
 CN Quinoxaline, 5-nitro-2,3-di-1H-pyrrol-2-yl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

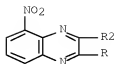
CRN 475476-76-7
 CMC C16 H11 N5 O2



RN 603972-83-4 HCAPLUS
 CN Quinoxaline, 2,3-di-2-furanyl-5-nitro-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 126988-08-7
 CMF C16 H9 N3 O4



RN 603972-84-5 HCAPLUS
 CN Quinoxaline, 5-nitro-2,3-di-2-thienyl-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 603972-81-2
 CMF C16 H9 N3 O2 S2



CC 79-3 (Inorganic Analytical Chemistry)
 IT 126988-08-7P, 2,3-Di-2-furyl-5-nitroquinoxaline 475476-76-7P,
 2,3-Di-2-pyrrolyl-5-nitroquinoxaline 603972-81-2P,
 2,3-Di-2-thienyl-5-nitroquinoxaline 603972-82-3P,
 2,3-Di-2-pyrrolyl-5-nitroquinoxaline polymer 603972-83-4P,
 2,3-Di-2-furyl-5-nitroquinoxaline polymer 603972-84-5P,
 2,3-Di-2-thienyl-5-nitroquinoxaline polymer
 RL: ARG (Analytical reagent use); DEV (Device component use); SPN
 (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES
 (Uses)

(cations recognition by ion selective electrodes based on monomer and
 polymer disubstituted nitroquinoxaline derivs.)

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD
 (7 CITINGS)

L17 ANSWER 8 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:633404 HCAPLUS Full-text

DOCUMENT NUMBER: 138:90113

TITLE: Synthesis and polymerization of aminoquinoxaline
 derivatives and their optical characteristics

AUTHOR(S): Furusho, Hitoshi; Yanagimoto, Akira; Miyamoto, Hisae;
 Chikama, Katumi; Nagasaki, Yukio

CORPORATE SOURCE: Chemical General Division, Nissan Chemical Industries,
 LTD., Tokyo, Japan

SOURCE: Journal of Photopolymer Science and Technology (2002),
 15(1), 133-135

CODEN: JSTEED; ISSN: 0914-9244

PUBLISHER: Technical Association of Photopolymers, Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Three 2,3-diaryl-5-aminoquinoxaline monomers were prepared and characterized.
 Band gap, UV-vis spectra, fluorescence, and voltammograms are presented. 2,3-
 Bis(4-ethylphenyl)-5-aminoquinoxaline was electropolymd. and polymer
 properties determined

IT 482576-92-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and electrochem. polymerization of aminoquinoxaline derivs.

and their
 optical characteristics)

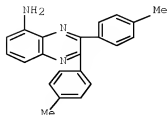
RN 482576-92-1 HCAPLUS

CN 5-Quinoxalinamine, 2,3-bis(4-methylphenyl)-, homopolymer (9CI) (CA INDEX
 NAME)

CM 1

CRN 482576-91-0

CMF C22 H19 N3



CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 28

IT 32044-95-4P, 5-Quinoxalinamine, 2,3-diphenyl- 32044-97-6P
482576-92-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and electrochem. polymerization of aminoquinoxaline derivs.
and their
optical characteristics)OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1995:794902 HCAPLUS Full-text

DOCUMENT NUMBER: 123:183661

ORIGINAL REFERENCE NO.: 123:32405a,32408a

TITLE: Functional thin film, production and application
thereof

INVENTOR(S): Saji, Tetsuo

PATENT ASSIGNEE(S): Dainichiseika Color Chem., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 41 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07062594	A	19950307	JP 1993-234301	19930827
JP 2825424	B2	19981118		

PRIORITY APPLN. INFO.: JP 1993-234301 19930827

AB The title film, useful for a color filter, electrophotog. device, photosensor, solar cell, electroluminescence device, optical recording device, optical nonlinear device, optoelectronic device, photochromic film, electrochromic film, gas sensor and ion sensor, is prepared by an electrochem. reduction of a surfactant containing an aromatic azo residue, dispersed in a water or water containing solvent. The title method requires min. or zero use of binder resin.

IT 167857-71-8

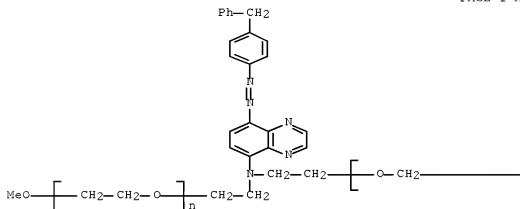
RL: DEV (Device component use); USES (Uses)
 (functional thin film prepared by photochem. reduction of surfactant
 containing

aromatic azo residue)

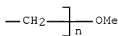
RN 167857-71-8 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α, α' -[[[8-[[4-(phenylmethyl)phenyl]azo]-5-quinoxaliny]]imino]di-2,1-ethanediyl]bis[α -methoxy- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IC ICM C25D009-08
 ICS C25D013-04; G01N027-12; G01N027-333; G02B005-20; G02F001-15;
 G02F001-155; G02F001-17; G03G005-06; G11B007-26; H01L031-04
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 52, 72, 73, 76
 IT 156461-29-9 156461-30-2 167856-77-1 167856-78-2 167856-79-3
 167856-80-6 167856-81-7 167856-82-8 167856-83-9 167856-84-0
 167856-85-1 167856-86-2 167856-87-3 167856-88-4 167856-89-5
 167856-90-8 167856-91-9 167856-92-0 167856-93-1 167856-94-2

167856-95-3	167856-96-4	167856-97-5	167856-98-6	167856-99-7
167857-00-3	167857-01-4	167857-02-5	167857-03-6	167857-04-7
167857-05-8	167857-06-9	167857-07-0	167857-08-1	167857-09-2
167857-10-5	167857-11-6	167857-12-7	167857-13-8	167857-14-9
167857-15-0	167857-16-1	167857-17-2	167857-18-3	167857-19-4
167857-20-7	167857-21-8	167857-22-9	167857-23-0	167857-24-1
167857-25-2	167857-26-3	167857-27-4	167857-28-5	167857-29-6
167857-30-9	167857-31-0	167857-32-1	167857-33-2	167857-34-3
167857-35-4	167857-36-5	167857-37-6	167857-38-7	167857-39-8
167857-40-1	167857-41-2	167857-42-3	167857-43-4	167857-44-5
167857-45-6	167857-46-7	167857-47-8	167857-48-9	167857-49-0
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167857-60-5	167857-61-6	167857-62-7	167857-63-8	167857-64-9
167857-65-0	167857-66-1	167857-67-2	167857-68-3	167857-69-4
167857-70-7	167857-71-8	167857-72-9	167857-73-0	
167857-74-1				

RL: DEV (Device component use); USES (Uses)

(functional thin film prepared by photochem. reduction of surfactant containing

aromatic azo residue)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD
(3 CITINGS)

L17 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1986:26076 HCAPLUS Full-text

DOCUMENT NUMBER: 104:26076

ORIGINAL REFERENCE NO.: 104:4197a,4200a

TITLE: Mediated redox reactions at the
1-aminophenazine-modified rotating disk electrode

AUTHOR(S): Bauldrey, J. M.; Archer, M. D.

CORPORATE SOURCE: Dep. Phys. Chem., Univ. Cambridge, Cambridge, CB2 1EP,
UK

SOURCE: Electrochimica Acta (1985), 30(10), 1355-9

CODEN: ELCAAV; ISSN: 0013-4686

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In acidic aqueous solns., a glassy C electrode coated with an anodically-
formed polymer of 1-aminophenazine (1-AP) mediates the reduction of dissolved
1-AP, Ce(IV), Fe(III) and O. The effective surface area of the electrode
appears to be reduced by several percent by the coating. Oxidation of V(II)
is also mediated at the 1-AP-coated electrode but that of Fe(II) is blocked in
accord with thermodyn. predictions. In neutral solution, reaction of the
Fe(CN)₆^{3-/2-} couple is not mediated at the coated electrode. The rate-
determining step for mediated 1-AP, Fe(III) and Ce(IV) reduction at a coated
rotating disk electrode is diffused in the bulk solution, but reaction at or
in the coating influences the rate of V(II) oxidation and O₂ reduction. The
reduction of O degrades the coating.

IT 99611-81-1

RL: PRP (Properties)

(electrode, glassy carbon electrode coated with, for mediated redox
reactions in acidic aqueous solns.)

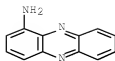
RN 99611-81-1 HCAPLUS

CN 1-Phenaznamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2876-22-4

CMF C12 H9 N3



CC 72-2 (Electrochemistry)
 Section cross-reference(s): 36
 IT 99611-81-1
 RL: PRP (Properties)
 (electrode, glassy carbon electrode coated with, for mediated redox reactions in acidic aqueous solns.)

L17 ANSWER 11 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1982:200709 HCAPLUS Full-text
 DOCUMENT NUMBER: 96:200709
 ORIGINAL REFERENCE NO.: 96:33119a,33122a
 TITLE: Thermostable composition
 INVENTOR(S): Chernikhov, A. Ya.; Yakovlev, M. N.; Rogov, N. S.
 PATENT ASSIGNEE(S): USSR
 SOURCE: Fr. Demande, 77 pp.
 CODEN: FRXXBL
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2476068	A1	19810821	FR 1979-4447	19790221
FR 2476068	B1	19821203		

PRIORITY APPLN. INFO.: FR 1979-4447 19790221

AB Organic compds. which contain Si, halogen, N, S, P, B, and/or O atoms and contain NH₂, OH, SH, NCO, NSO, and/or NCS groups as well as cyano and/or ethynyl groups are mixed with a filler, such as TiO₂, MoS₂, Al, W, Co, Cu, graphite, glass fibers, asbestos, quartz, or silica, and polymerized to prepare ≈110 heat-resistant resins which are especially useful as binders (e.g., for abrasive particles such as diamonds and Si carbide) and adhesives. In some cases, the resins also contain a polyimide, polybenzoxazole, polyoxadiazole, polythioarylene, or similar resin which improves their mech. properties and heat resistance. Thus, 0.4 g powdered polybenzoxazole prepared from bis(4-amino-3-hydroxyphenyl)methane and isophthalic acid was mixed with asbestos 0.8, 2,5-diamino-3,4-dicyanothiophene 0.24, and bis(4-isocyanatophenyl)methane 0.36 g and cured in a mold for 90, 90, and 30 min at 190, 250, and 300°, resp. The compressive strength (kg/cm²) of the molding was 1000 initially and 1150 after 500 h at 300° in air.

IT 75610-11-6P 80905-50-6P
 RL: PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)

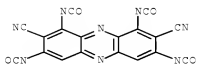
(preparation of heat-resistant, fillers for)

RN 75610-11-6 HCAPLUS

CN 2,8-Phenazinedicarbonitrile, 1,3,7,9-tetraisocyanato-, polymer with 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

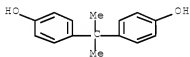
CM 1

CRN 75610-10-5
CMF C18 H2 N8 O4



CM 2

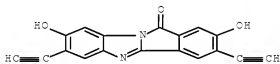
CRN 80-05-7
CMF C15 H16 O2



RN 80905-50-6 HCAPLUS
CN 2,8-Phenazinedicarbonitrile, 1,3,7,9-tetraisocyanato-, polymer with
3,7-diethynyl-2,8-dihydroxy-11H-isoindolo[2,1-a]benzimidazol-11-one (9CI)
(CA INDEX NAME)

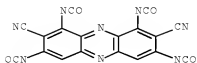
CM 1

CRN 75610-12-7
CMF C18 H8 N2 O3



CM 2

CRN 75610-10-5
CMF C18 H2 N8 O4



IC C04B025-02
 CC 37-3 (Plastics Manufacture and Processing)
 IT 75-13-8DP, polymers with amino and cyano compds. 37705-84-3DP, polymers with isocyanates 73417-95-5P 74159-15-2P 74159-18-5P 74159-20-9P
 75597-14-7P 75597-17-0P 75597-20-5P 75597-35-2P 75609-33-5P
 75609-36-8P 75609-37-9P 75609-39-1P 75609-41-5P 75609-42-6P
 75609-44-8P 75609-47-1P 75609-49-3P 75609-52-8P 75609-57-3P
 75609-70-0P 75609-72-2P 75609-74-4P 75609-79-9P 75609-81-3P
 75609-87-9P 75609-91-5P 75610-00-3P 75610-03-6P 75610-05-8P
 75610-06-9P 75610-08-1P 75610-09-2P 75610-11-6P
 75610-13-8P 75610-19-4P 75610-21-8P 75610-24-1P 75610-26-3P
 75610-27-4P 75610-32-1P 75610-35-4P 75610-37-6P 75610-40-1P
 75610-42-3P 75610-46-7P 75610-49-0P 75610-51-4P 75610-52-5P
 75610-54-7P 75610-56-9P 75610-58-1P 75610-90-1DP, polymers with hydroxy and isocyanate compds. 75610-91-2DP, polymers with amino, cyano, and hydroxy compds. 75625-48-8P 75636-79-2P 75636-81-6P
 75636-84-9P 75636-85-0P 75636-89-4P 75636-91-8P 75636-93-0P
 75658-38-7P 75659-01-7P 75672-91-2P 75803-70-2P 80905-25-5P
 80905-27-7P 80905-28-8P 80905-29-9P 80905-30-2P 80905-32-4P
 80905-33-5P 80905-34-6P 80905-36-8P 80905-40-4P 80905-41-5P
 80905-42-6P 80905-44-8P 80905-47-1P 80905-49-3P
 80905-50-6P 80905-51-7P 80905-53-9P 80905-54-0P
 80905-56-2P 80905-57-3P 80905-58-4P 80905-59-5P 80905-61-9P
 80905-63-1P 80905-97-1P 80906-00-9P 80906-02-1P 80906-04-3P
 80906-05-4P 80906-07-6P 80910-45-8P 80910-47-0P 80910-50-5P
 80910-52-7P 80951-94-6P
 RL: PEP (Physical, engineering or chemical process); PREP (Preparation);
 PROC (Process)

(preparation of heat-resistant, fillers for)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
 (2 CITINGS)
 REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1980:640508 HCAPLUS Full-text
 DOCUMENT NUMBER: 93:240508
 ORIGINAL REFERENCE NO.: 93:38553a,38556a
 TITLE: Heat-resistant polymeric material
 INVENTOR(S): Chernikhov, A. Ya.; Yakovlev, M. N.; Rogov, N. S.;
 Petrova, A. P.; Martirosov, E. B.; Gul, V. E.
 PATENT ASSIGNEE(S): USSR
 SOURCE: Ger. Offen., 83 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2907195	A1	19800828	DE 1979-2907195	19790223
JP 55118914	A	19800912	JP 1979-24370	19790302
JP 60021647	B	19850529		
US 4458041	A	19840703	US 1980-199116	19801017
PRIORITY APPLN. INFO.:			US 1979-8562	A1 19790201
			DE 1979-2907195	A 19790223
OTHER SOURCE(S):		MARPAT 93:240508		

AB Monomers (and, in some cases, low-mol.-weight polymers) containing NH₂, OH, SH, NCO, NSO, and/or NCS groups as well as cyano and/or ethynyl groups are polymerized to prepare .apprx.110 polymers which are resistant to degradation at 300-400°. In most cases, the monomers and low-mol.-weight polymers are mixed with fillers such as TiO₂, powdered metals, glass fibers, carbon fibers, graphite, powdered polyoxadiazole, polybenzoxazole, polyimide, or fluoropolymer, asbestos, MoS₂, BN, silica, diamond dust, and/or SiC. The heat-resistant polymeric materials are useful as moldings, adhesives, grinding disks, etc. Thus, a mixture of bis(3-amino-4-cyanophenyl) ether 0.16, bis(4-isocyanatophenyl)methane 0.16, graphite 0.2, and a powdered poly-1,3,4-oxadiazole 0.78 g was molded at 130-200°/245 bars, demolded, and heated at 300° for 30 min to prepare a molding which had compressive strength (MN/m²) 96 initially and 108 after 500 h in air at 300° and had flexural strength (MN/m²) 31 initially and 35 after heat aging.

IT 75610-11-6P 75636-80-5P

RL: PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(manufacture of heat-resistant, filler-containing)

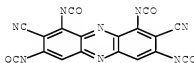
RN 75610-11-6 HCAPLUS

CN 2,8-Phenazinedicarbonitrile, 1,3,7,9-tetraisocyanato-, polymer with 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 75610-10-5

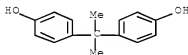
CMF C18 H2 N8 O4



CM 2

CRN 80-05-7

CMF C15 H16 O2

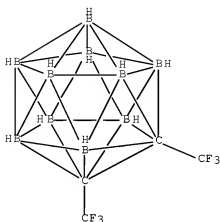


RN 75636-80-5 HCAPLUS

CN 2,8-Phenazinedicarbonitrile, 1,3,7,9-tetraisocyanato-, polymer with 1,2-bis(trifluoromethyl)-1,2-dicarbadodecaborane(12) and 3,7-diethynyl-2,8-dihydroxy-11H-isoindolo[2,1-a]benzimidazol-11-one (9CI) (CA INDEX NAME)

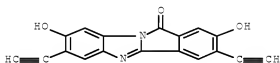
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CRN 75610-89-8
CMF C4 H10 B10 F6



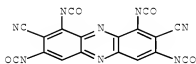
CM 2

CRN 75610-12-7
CMF C18 H8 N2 O3



CM 3

CRN 75610-10-5
CMF C18 H2 N8 O4



IC C08G073-06
CC 36-3 (Plastics Manufacture and Processing)
IT 89-05-4DP, polymers with amino, hydroxy, and isocyanate compds.
101-77-9DP, polymers with carboxy, hydroxy, and isocyanate compds.
107-15-3DP, polymers with cyano, isocyanate, and isothiocyanate compds.
and carboranes 108-78-1DP, polymers with amino, cyano, and isocyanate

comps. 111-16-0DP, polymers with bis(aminocyanophenyl) ether, dicarbadodecaborane, and polyisocyanates 124-04-9DP, polymers with carboranes and isocyanate-terminated polyamides 289-95-2DP, derivs., polymers 1187-12-8DP, polymers with isocyanates 4128-73-8DP, polymers with aromatic amino and cyano comps. 4538-42-5DP, polymers with amino, cyano, and isothiocyanate comps. and carboranes 16872-09-6DP, derivs., polymers 19610-37-8DP, polymers with bis(aminocyanophenyl) ether, heptanedioic acid, and polyisocyanates 23843-73-4DP, polymers with ethynyl, hydroxy, and isocyanate comps. 37705-84-3DP, polymers with isocyanates 56597-57-0DP, polymers with isocyanates 61381-99-5DP, polymers with isocyanates 73417-95-5P 74159-15-2P 74159-18-5P 74159-20-9P 75597-11-4P 75597-14-7P 75597-17-0P 75597-20-5P 75597-23-8DP, polymers with amino, cyano, and isocyanate comps. 75597-35-2P 75609-33-5P 75609-36-8P 75609-37-9P 75609-39-1P 75609-41-5P 75609-42-6P 75609-43-7P 75609-44-8P 75609-46-0P 75609-47-1P 75609-48-2P 75609-49-3P 75609-52-8P 75609-55-1P 75609-57-3P 75609-61-9P 75609-65-3P 75609-68-6P 75609-70-0P 75609-71-1DP, polymers with hydroxy-terminated polyoxyphenylenes 75609-72-2P 75609-74-4P 75609-77-7P 75609-79-9P 75609-81-3P 75609-83-5P 75609-87-9P 75609-91-5P 75609-93-7P 75609-96-0P 75609-99-3P 75610-00-3P 75610-03-6P 75610-05-8P 75610-06-9P 75610-08-1P 75610-09-2P 75610-11-6P 75610-13-8P 75610-16-1P 75610-19-4P 75610-21-8P 75610-24-1P 75610-25-2DP, polymers with amino, cyano, and isocyanate comps. 75610-26-3P 75610-27-4P 75610-29-6P 75610-30-9P 75610-32-1P 75610-35-4P 75610-37-6P 75610-40-1P 75610-42-3P 75610-44-5P 75610-46-7P 75610-49-0P 75610-51-4P 75610-52-5P 75610-54-7P 75610-56-9P 75610-58-1P 75610-90-1DP, polymers with hydroxy and isocyanate comps. 75610-91-2DP, polymers with amino, cyano, and hydroxy comps. 75610-92-3DP, polymers with hydroxy-terminated polythiophenylene 75610-93-4DP, polymers with hydroxy and isocyanate comps. 75610-94-5DP, polymers with isothiocyanate-terminated aromatic polysulfones 75610-95-6DP, polymers with hydroxy-terminated aromatic polysulfides 75610-96-7DP, polymers with cyano, hydroxy, and isocyanate comps. 75610-97-8DP, reaction products with ethynyl compound-isothiocyanate compound copolymers 75610-98-9DP, polymers with aromatic epoxy and hydroxy comps. 75610-99-0DP, polymers with isothiocyanate-terminated aromatic sulfones 75611-00-6DP, polymers with hydroxy-containing polysilanes and carboranes 75611-01-7DP, polymers with amino, cyano, isocyanate, and isothiocyanate comps. 75611-02-8DP, polymers with isothiocyanate-terminated aromatic sulfones 75611-03-9DP, polymers with cyano comps., ethynyl comps. and isocyanates 75611-04-0DP, polymers with carboranes, ethynyl comps. and polyisocyanates 75611-05-1DP, polymers with carboranes, cyano comps., and polyisocyanates 75625-48-8P 75636-79-2P 75636-80-5P 75636-81-6P 75636-83-8P 75636-84-9P 75636-85-0P 75636-87-2P 75636-89-4P 75636-91-8P 75636-93-0P 75637-07-9DP, polymers with polyisocyanates 75658-38-7P 75659-00-6P 75659-01-7P 75672-91-2P 75803-70-2P

RL: PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)

(manufacture of heat-resistant, filler-containing)

=> d his nof

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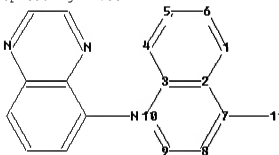
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 D IALL
 SEL RN

FILE 'REGISTRY' ENTERED AT 14:49:17 ON 06 AUG 2009

L2 29 SEA ABB=ON PLU=ON (126988-06-5/BI OR 32044-95-4/BI OR
 32044-97-6/BI OR 3694-52-8/BI OR 440115-69-5/BI OR 451462-41-2/
 BI OR 482576-91-0/BI OR 603972-81-2/BI OR 608-32-2/BI OR
 61875-42-1/BI OR 619253-28-0/BI OR 619253-29-1/BI OR 619253-30-
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 860478-88-2/BI OR 860478-89-3/BI OR 862806-22-2/BI OR 862806-23
 -3/BI OR 862806-24-4/BI OR 862806-25-5/BI)
 L3 STRUCTURE UPLOADED
 D

Uploading L2.str



chain nodes :

11

ring nodes :

1 2 3 4 5 6 7 8 9 10

chain bonds :

7-11

ring bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10

exact/norm bonds :

7-11

normalized bonds :

1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
 11:CLASS

L4 50 SEA SSS SAM L3

L5 2049 SEA SSS FUL L3

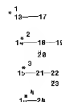
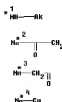
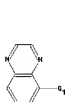
10/588232

SAVE TEMP L5 FAN232REGL2/A
 L6 27 SEA ABB=ON PLU=ON L5 AND L2
 L7 26 SEA ABB=ON PLU=ON L5 AND PMS/CI

FILE 'STNGUIDE' ENTERED AT 15:39:00 ON 06 AUG 2009

FILE 'REGISTRY' ENTERED AT 15:40:50 ON 06 AUG 2009
 L8 STRUCTURE UPLOADED
 D

Uploading L4.str



chain nodes :
 11 13 14 15 16 17 18 19 20 21 22 23 24
 ring nodes :
 1 2 3 4 5 6 7 8 9 10
 chain bonds :
 7-11 13-17 14-18 15-21 16-24 18-19 18-20 21-22 22-23
 ring bonds :
 1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10
 exact/norm bonds :
 7-11 13-17 14-18 16-24 18-20 22-23
 exact bonds :
 15-21 18-19 21-22
 normalized bonds :
 1-2 1-6 2-3 2-7 3-4 3-10 4-5 5-6 7-8 8-9 9-10
 isolated ring systems :
 containing 1 :

G1:[*1],[*2],[*3],[*4]

Connectivity :
 17:1 E exact RC ring/chain
 Match level :
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
 11:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS 19:CLASS
 20:CLASS 21:CLASS
 22:CLASS 23:CLASS 24:Atom

L9 12 SEA SUB=L5 SSS SAM L8
 L10 191 SEA SUB=L5 SSS FUL L8

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L12      71 SEA ABB=ON  PLU=ON  L10
L13      2 SEA ABB=ON  PLU=ON  L12 AND ELECTRODE?
L14      2 SEA ABB=ON  PLU=ON  L12 AND ENERGY STOR?
L15      3 SEA ABB=ON  PLU=ON  L12 AND 76/SC, SX
L16      4 SEA ABB=ON  PLU=ON  (L13 OR L14 OR L15)
          D SCAN TI HIT
L17      12 SEA ABB=ON  PLU=ON  L11 OR L16
          SAVE TEMP L17 FAN232HCAP/A
          D QUE L17
          D L17 1-12 IBIB ABS HITSTR HITIND

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